Note on the Belgian Observations of the late Transit of Mercury.

By Captain W. Noble.

In reply to a question addressed to me by our President, at the meeting of the Society on the evening of May 10, I expressed my belief that the determinations of the geographical position of the Observatory of M. de Boë at Antwerp, and of the local time there, were entirely trustworthy. I am now in a position to speak even more definitely, inasmuch as I have received a letter from the Baron von Ertbon, in which he says (I translate literally from the original) "that he (M. de Boë) has connected his Observatory by triangulation with the tower of Antwerp Cathedral, which is a point of the first order in the triangulation of the country. The co-ordinates then by reference to Brussels and Greenwich are rigorously known.

	m	s				
Brussels is East of Greenwich	17	28·9				
From Brussels to M. de Boë's Observatory, East		9·7				
	17	38·6	Lat.	51°	12′	28″.

The time was rigorously known. M. de Boë has a meridian circle by Secretan, with an objective of 2·56 inches aperture, a clock by Garnier, and a chronometer by the same artist, of which the error and rate are regularly observed and noted."

The Transit of Mercury, May 6, 1878. By John J. Plummer, M.A.

The transit of *Mercury* was observed at Orwell Park under unfavourable circumstances, but a better observation was secured than could have been expected. About noon light cirrus cloud overspread the sky, which became gradually denser until towards sunset, when rain fell heavily. For the few minutes during which the contacts were to be observed the clouds were decidedly thinner and the Sun could be well seen through a slightly tinted glass. The definition of the limb was, however, very bad and unsuited for scrutinising the phenomena of contact, and, although I was prepared to take micrometrical measurements, none were attempted in consequence.

	h	m	s
Greenwich mean time of external contact	3	11	34·2
„ „ internal „	3	14	19·7

The external contact was considered very good, but it is possible it may be 3 or 4 seconds late, as the undulations of the limb were so considerable that a little hesitation could hardly be avoided. The time of internal contact was the moment at

which light appeared permanently established in the rear of the planet without any distortion of the Sun's limb. Owing to the violent motion, it is possible that this time is one or two seconds too soon, but it is to be noted that my observation of the transit in 1868 left a precisely analogous impression on my mind at the time, namely that there was the reverse of clinging, or that the planet disengaged itself from the limb more suddenly and rather earlier than the progress of the phenomenon led the observer to anticipate. So far as the unfavourable atmospheric circumstances would allow, I note, therefore, no drop or ligament, no bright spot on *Mercury*, no aureola around the planet, and no distortion of either Sun or planet other than as produced by our atmosphere.

At $3^h\ 9^m\ 20^s \pm$ my wife, who assisted me at the observation, first detected the planet against the solar corona, though I had previously looked for it in vain. On taking my station at the telescope a minute later I also detected it, dimly visible, but sufficiently so to direct my attention to the exact point where contact was to take place, and to lead me to suppose that, but for the clouds through which the observation was made, it would have been fairly conspicuous. Full aperture employed 10 inches, focal length 12 ft. 9 in., power 303.

Orwell Park Observatory,
May 31, 1878.

Observations of the Transit of Mercury, May 6, 1878, *at Dunecht Observatory.* By Lord Lindsay and Dr. Copeland.

Until about half-an-hour before the beginning of the transit the day was very fine, with a fresh breeze from the S.S.E. About this time light drifting clouds began to appear, and increased in density until the Sun was at times wholly obscured. Just before first contact, however, the clouds gradually assumed a more fleecy character, and the Sun reappeared with rapidly increasing brightness. Thus it happened that first contact was seen through an appreciable layer of cloud, which was nearly swept away before the planet had fully entered on the Sun's disk. Except perhaps for photographic purposes, the sky was practically clear for the rest of the day.

Five telescopes were used in the observations, besides photographic apparatus. Lord Lindsay and Mr. Ranyard observed with the spectroscope; Mr. Ranyard also made eye observations along with Messrs. H. J. Carpenter, J. G. Lohse, and Dr. Copeland, while Mr. Davis took a series of photographs.

The observations are here given under five heads, in the succession adopted in Lord Lindsay's circular of April 16.